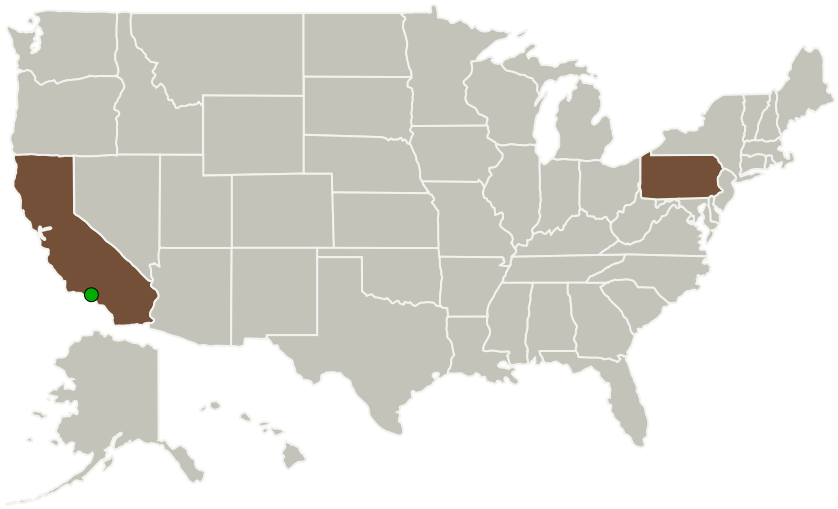
Wide-Field, Deep UV Raman Hyperspectral Imager, Phase I

Completed Technology Project (2014 - 2014)

Project Introduction

ChemImage Sensor Systems (CISS), teaming with the University of South Carolina, proposes a revolutionary wide-field Raman hyperspectral imaging system capable of meeting the stated needs. The proposed innovation couples a spatial heterodyne spectrometer (SHS), a novel slit-less spectrometer that operates similar to Michelson interferometer, with a fiber array spectral translator (FAST) fiber array, a two-dimensional imaging fiber for hyperspectral imagery, to create a novel wide-field, high throughput Raman hyperspectral imager capable of yielding very high spectral resolution in a small form factor. The system can be configuredin both benchtop and standoff configurations. A standoff configuration is beneficial for any rover based mission, since it does not require close contact to the analyte of interest and Raman can interrogate targets up to 100 meters away.

Primary U.S. Work Locations and Key Partners



Organizations Performing Work	Role	Type	Location
ChemImage Sensor Systems	Lead Organization	Industry	Pittsburgh, Pennsylvania
Jet Propulsion Laboratory(JPL)	Supporting Organization	NASA Center	Pasadena, California

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Primary U.S. Work Locations	
California	Pennsylvania

Project Transitions

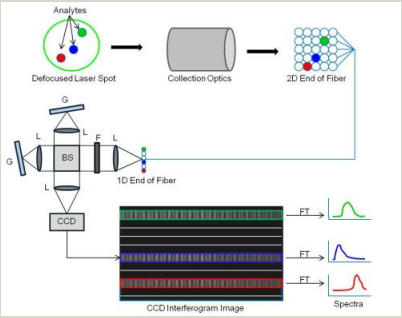
June 2014: Project Start

December 2014: Closed out

Closeout Documentation:

- Final Summary Chart*(https://techport.nasa.gov/file/137439)*

Images



Briefing Chart
Wide-Field, Deep UV Raman Hyperspectral Imager, Phase I *(https://techport.nasa.gov/image/131676)*

Organizational Responsibility

Responsible Mission Directorate:
Space Technology Mission Directorate (STMD)

Lead Organization:
ChemImage Sensor Systems

Responsible Program:
Small Business Innovation Research/Small Business Tech Transfer

Project Management

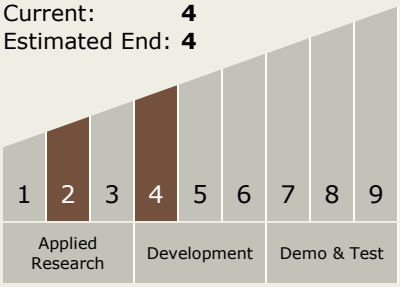
Program Director:
Jason L Kessler

Program Manager:
Carlos Torrez

Principal Investigator:
Nathaniel R Gomer

Technology Maturity (TRL)

Start: **2**
Current: **4**
Estimated End: **4**



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Technology Areas

Primary:

- TX08 Sensors and Instruments
  - TX08.3 In-Situ Instruments and Sensors
    - TX08.3.1 Field and Particle Detectors

Target Destinations

The Sun, Earth, The Moon, Mars, Others Inside the Solar System, Outside the Solar System